

This listing of claims will replace all prior versions, and listings, of claims in the application.

WHAT IS CLAIMED IS:

1. (WITHDRAWN) An injection molding apparatus comprising:
 - a mold body having a cavity for forming a hollow molded plastic part;
 - a source of fluent plastic fluidly connectable to said cavity;
 - a runner for supplying fluent plastic from said source to said cavity;
 - at least one fluid injection pin mounted to said mold body and connectable to a fluid source;
 - a reservoir positioned remote from said cavity and selectively connectable to said runner; and
 - a valve positioned adjacent a mouth of said runner, said valve being operable between a first state at which said reservoir is fluidly connected to said runner, and a second state at which said reservoir is blocked from fluid communication with said runner.
2. (WITHDRAWN) The injection molding apparatus of claim 1 wherein said mold cavity has an upstream end and a downstream end;
 - said runner is fluidly connected to said mold cavity at a gate positioned adjacent said upstream end; and
 - said at least one fluid injection pin is positioned proximate said downstream end.
3. (WITHDRAWN) The injection molding apparatus of claim 2 wherein said gate directs fluent plastic from said fluent plastic source into said mold cavity in a substantially

downstream direction during a plastic injection cycle, and said at least one fluid injection pin directs fluid into said mold cavity in a substantially upstream direction during a plastic ejection cycle.

4. (WITHDRAWN) The injection molding apparatus of claim 1 further comprising actuating means for operating said valve member between said first and said second states.

5. (WITHDRAWN) The injection molding apparatus of claim 4 wherein said valve is hydraulically actuated.

6. (WITHDRAWN) The injection molding apparatus of claim 4 wherein said valve is pneumatically actuated.

7. (WITHDRAWN) The injection molding apparatus of claim 4 wherein said valve is electromechanically actuated.

8. (WITHDRAWN) The injection molding apparatus of claim 1 wherein a volume of said runner is greater than or equal to a volume of plastic ejected from said cavity by fluid injected through said at least one fluid injection pin.

9. (ORIGINAL) A process for injection molding of fluid filled plastic bodies in an apparatus having a mold cavity and a separate fluid reservoir, the process comprising the steps of:

connecting a source of flowable plastic material fluidly to the mold cavity with a supply passage;

positioning at least one fluid injection pin partially within the mold cavity, the fluid injection pin being connectable to a fluid source;

injecting a quantity of flowable plastic into an interior of the mold cavity through the supply passage;

cooling part of the plastic melt along walls of the mold cavity, thereby providing an interior of flowable, plastic melt;

injecting a quantity of fluid from the fluid source into the interior of flowable, plastic melt;

selectively expelling at least a portion of the interior of flowable, plastic melt into the supply passage; and

selectively expelling at least a portion of fluent plastic from the supply passage into the reservoir.

10. (ORIGINAL) The process of claim 9 further comprising the step of injecting a second quantity of fluid from said fluid source into the mold cavity.

11. (ORIGINAL) The process of claim 9 further comprising the steps of injecting a plurality of discrete quantities of fluid from the fluid source into the mold cavity.

12. (ORIGINAL) The process of claim 9 wherein the step of injecting a flowable plastic is characterized by injecting the flowable plastic material in a downstream direction; and

the step of injecting a quantity of fluid is characterized by injecting the gas in an upstream direction to eject a portion of the flowable plastic from the mold.

13. (CANCELLED)

14. (AMENDED) The method of claim 13 2 wherein said fluid ~~source~~ is a ~~source of~~ compressible fluid.

15. (AMENDED) The method of claim 13 2 wherein said fluid ~~source~~ is a ~~source of~~ non-compressible fluid.

16. (AMENDED) The method of claim 13 2 wherein said fluid ~~source is a~~ ~~source of~~ includes compressible and non-compressible fluids.

17. (CANCELLED)

18. (CANCELLED)

19. (ORIGINAL) A process for injection molding of plastic bodies in a molding apparatus having a mold cavity, the process comprising the steps of:

injecting a quantity of flowable plastic into the mold cavity;

injecting a quantity of pressurized compressible fluid into the interior of said flowable plastic in said cavity, increasing the pressure within said cavity;

selectively connecting the mold cavity with a reservoir after cessation of pressurized fluid injection, so that a portion of said flowable plastic flows from the mold cavity.

20. (ORIGINAL) The process of claim 19 wherein said step of selectively connecting is characterized by actuating a control valve to fluidly connect the mold cavity with the reservoir.

21. (ORIGINAL) The process of claim 20 wherein said portion of the interior of flowable plastic flows from the mold cavity in the direction of said injection of flowable plastic.

22. (ORIGINAL) The process of claim 20 wherein said portion of the interior of flowable plastic flows from the mold cavity in an upstream direction opposite the direction of said injection of flowable plastic.

23. (ORIGINAL) A process for injection molding of hollow articles in an apparatus having a mold cavity and a reservoir, the process comprising the steps of:

injecting fluent plastic into the apparatus;

injecting a pressurized compressible fluid into the fluent plastic, the fluid forming a pocket of pressurized fluid therein;

maintaining fluid pressure in the mold a predetermined duration after cessation of said fluid injection;

selectively connecting the mold cavity to the reservoir, so that a portion of the fluent plastic flows to the reservoir.

24. (CURRENTLY AMENDED) The process of claim ~~24~~ 23 wherein the predetermined duration is about two seconds to about ten seconds.

25. (ORIGINAL) The process of claim 23 wherein the step of selectively connecting the mold cavity to the reservoir includes actuating a control valve to fluidly connect the mold cavity therewith.

26. (ORIGINAL) The process of claim 23 wherein the portion of fluent plastic flows to the reservoir in a downstream direction.

27. (CANCELLED)

28. (CURRENTLY AMENDED) The process of claim ~~27~~ 23 wherein said portion of the fluent plastic flows from the mold cavity in the direction of said injection of fluent plastic.

29. (CURRENTLY AMENDED) The process of claim ~~27~~ 23 wherein said portion of the fluent plastic flows from the mold cavity in a direction opposite to the direction of said injection of fluent plastic.

30. (NEW) A method for injection molding a part having at least one cavity therein, comprising the steps of;

injecting thermoplastic melt from an injection unit along a melt flow path into a cavity of an injection molding tool to partially fill the cavity;

selectively isolating said melt flow path from said cavity;

injecting a compressible fluid into the thermoplastic melt; and then

selectively connecting said melt flow path with said cavity so that a portion of said thermoplastic melt flows from said cavity.